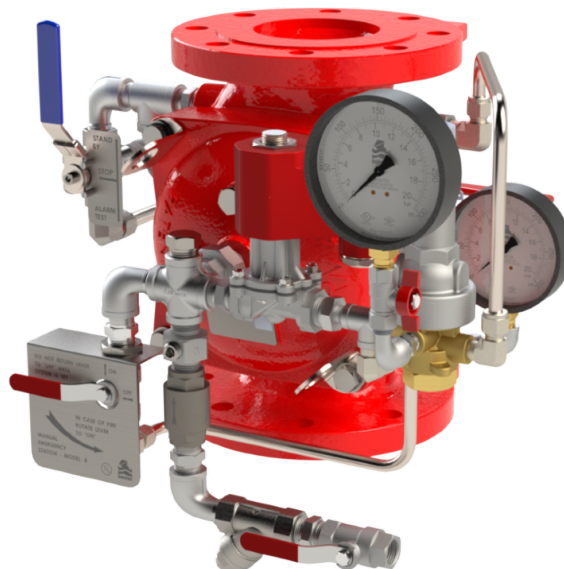


ELECTRIC PRESSURE CONTROL ON-OFF DELUGE VALVE

Model FP-400E-2DC

The BERMAD model 400E-2DC is an elastomeric, hydraulic, line pressure operated deluge valve, designed specifically for advanced fire protection systems and the latest industry standards. The 400E-2DC is activated by a 2-way solenoid valve by which opening and closing of the deluge valve may be controlled remotely. An integrated pressure reducing pilot ensures a precise and stable pre-set downstream water pressure. The 400E-2DC is ideal for open-nozzle systems with a high pressure water supply and is available with electric components to suit any hazardous location. The optional valve position indicator can include a limit switch suitable for Fire & Gas monitoring systems



Features & Benefits

- Safety and reliability
 - Time proven, simple design with a fail safe actuation
 - Single piece, rugged elastomeric diaphragm seal - VRSD technology
 - Obstacle-free, uninterrupted flow path
 - Meets the requirements of the industry standards
 - Designed for high reliability and easy maintenance
- Quick and easy maintenance
 - In-line serviceable
 - Fast and easy cover removal

Approvals



UL-Listed
Special System Water Control
Valves, Deluge Type (VLFT)
Sizes 1½" - 10"



ABS
American Bureau of Shipping
Type Approval
Sizes 1½" - 12"



Det Norske Veritas
Type Approval
Sizes 1½" to 12"



Lloyd's Register
Type Approval
Sizes 1½" - 10"

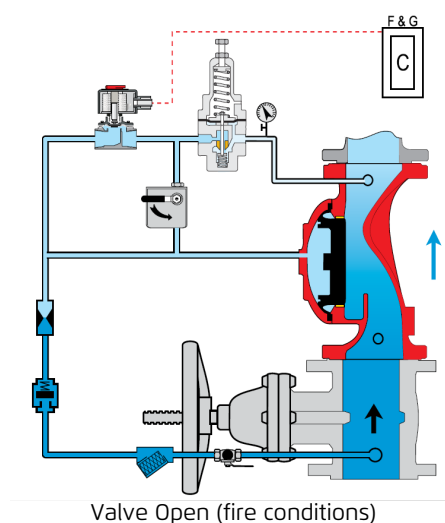
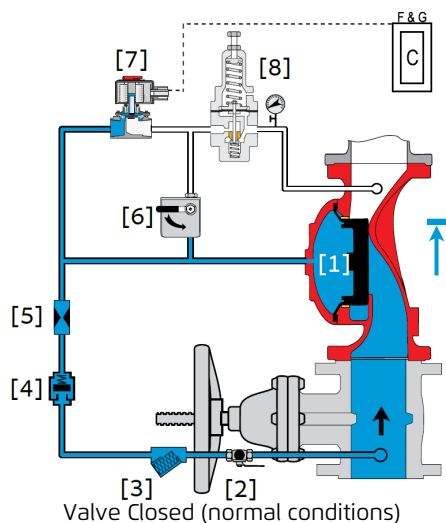
Typical Applications

- Zonal Pressure Control
- High Pressure Water Supply
- Remote Control Water Spray Systems

Additional Features

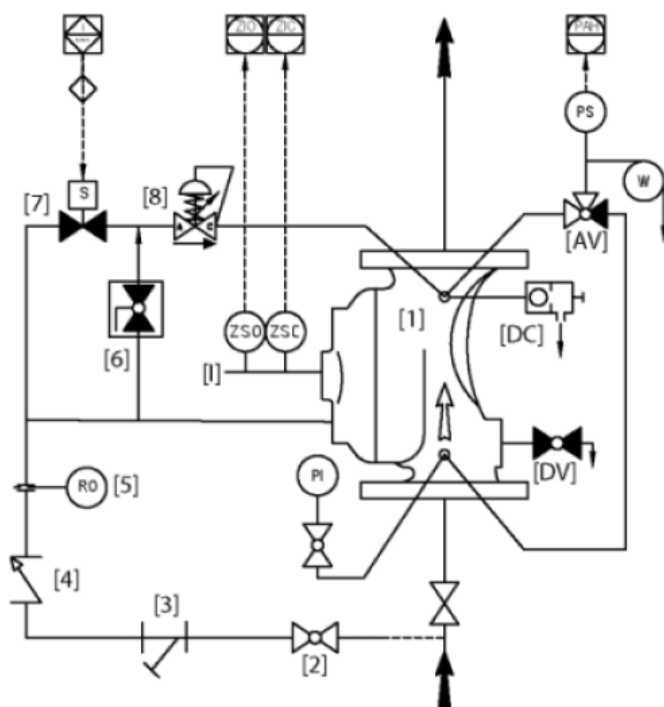
- Valve position limit switches
- Alarm pressure switch
- Seawater compatibility
- Magna-Latch Solenoid option
- Corrosion resistant zinc based high build epoxy coating

Operation



The BERMAD model 400E-2DC is held closed by water pressure in the control chamber [1]. Upon release of pressure from the control chamber, the valve opens. Under NORMAL conditions, water pressure is supplied to the control chamber via the priming line [2] restriction orifice [5], and strainer [3], and is then trapped in the control chamber by a check valve [4], manual emergency release [6], and a 2-way solenoid valve [7]. The water pressure trapped in the main valve control chamber holds the diaphragm against the valve seat, sealing it drip tight and keeping the system pipes dry. Under FIRE conditions, water pressure is released from the control chamber, either with the manual emergency release, or by the solenoid valve being activated by the fire & gas control system [C]. This opens the 400E-2DC deluge valve, allowing water to flow into the system piping and to the alarm device [10]. The pressure-reducing pilot valve [8] senses changes in outlet pressure and modulates the main valve to maintain the set downstream pressure. When outlet pressure rises above the pre - set pressure value, the pilot valve throttles, enabling pressure to accumulate in the control chamber. This causes the main valve to close further and reduce outlet pressure, keeping the outlet pressure at the set value. When outlet pressure falls, the pilot valve opens wider, releasing pressure from the control chamber. This causes the main valve to open wider and increases outlet pressure.

System P&ID



Components	
1	BERMAD 400E Deluge Valve
2	Priming Ball Valve
3	Priming Strainer
4	Check valve
5	Restriction Orifice
6	Manual Emergency Release
7	2-Way Solenoid Valve
8	Pressure Reducing Pilot Valve

Optional System Items	
ZS	Limit Switch Assembly
W	Water Motor Alarm
PS	Pressure Switch
I	Visual Valve Position indicator
PI	Pressure Gauge*
DV	Drain Valve*
DC	Automatic Drip Check Valve*
AV	3-way Alarm Test Valve*

* Included with suffix A in valve code (drain and indicating components)
See code designations and "factory supplied additional items" on page 4

System Installation

A typical installation of the BERMAD model 400E-2DC features actuation via a hydraulic relay valve and 2-way solenoid valve, triggered by a signal from a fire & gas control system or an on-site emergency pushbutton. When open, and fitted with a limit switch the valve can send a feedback signal to a remote valve position monitoring system.

A pressure reducing pilot valve integrated in the control trim ensures a precise and stable pre-set downstream water pressure.

Optional System Items



Water Motor Alarm



Single Ex d
Proximity S.S.316
Limit Switch



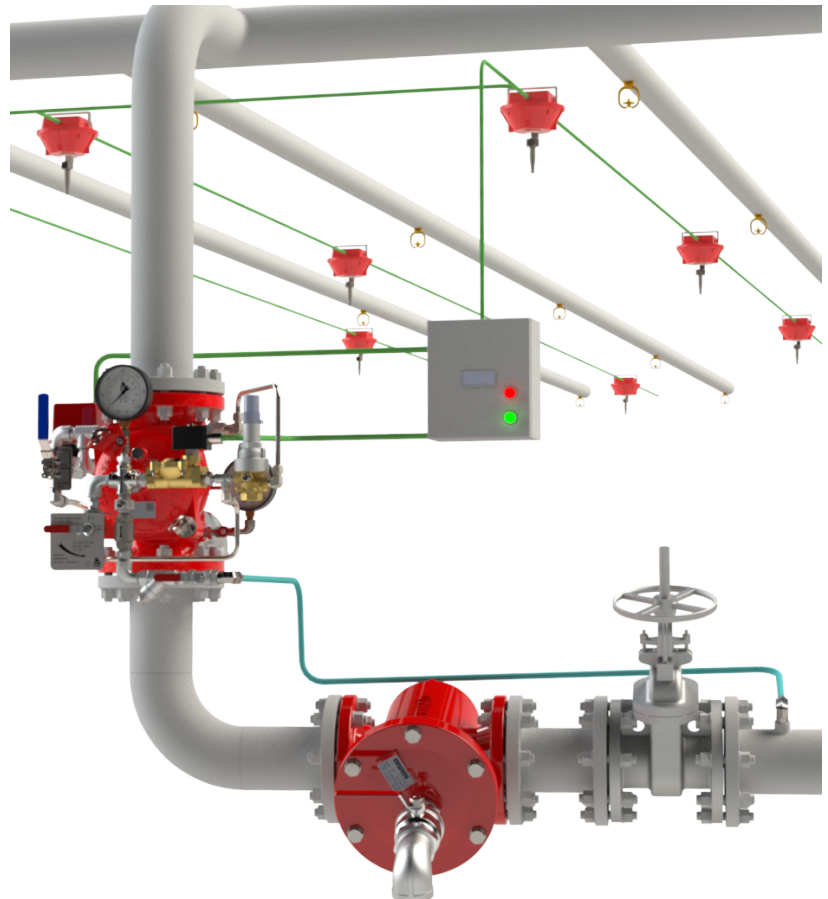
Exd Pressure
Switch - Stainless
Steel Enclosure for
Harsh
Environments



Pressure Gauge



Basket Strainer -
60F



Suggested Specifications

The deluge valve shall be UL-listed, 250 psi/17.2 bar rated.

The valve shall have an unobstructed flow path, with no stem guide or supporting ribs.

The deluge valve shall have no mechanical moving parts, and the actuation shall utilize a single-piece diaphragm assembly of VRSD technology.

The valve shall be coated internally and externally with UV protection. Optional: C5-VH grade of ISO-12944 standard against corrosive conditions.

The solenoid valve shall be a 2-way FM and UL429A-listed for 365 psi/25 bar with 65% of the rated voltage.

The control trim shall include a pressure control pilot valve, an auxiliary relay valve, a manual emergency release unit, a Y-type strainer, two 4-inch pressure gauges, and an automatic drip-check with manual override.

A valve position indicator shall be provided, and equipped with two proximity limit switches.

Removing the valve cover for full inspection and maintenance shall be in-line, and not require removal of the valve from the pipeline.

The deluge valve and control trim shall be pre-assembled and hydraulically tested by a UL/FM and ISO 9000, 9001 certified factory.

Technical Data

Available Sizes:

Flanged- 1½, 2, 2½, 3, 4, 6, 8, 10 & 12"

Grooved- 2, 3, 4, 6, & 8"

Pressure Rating:

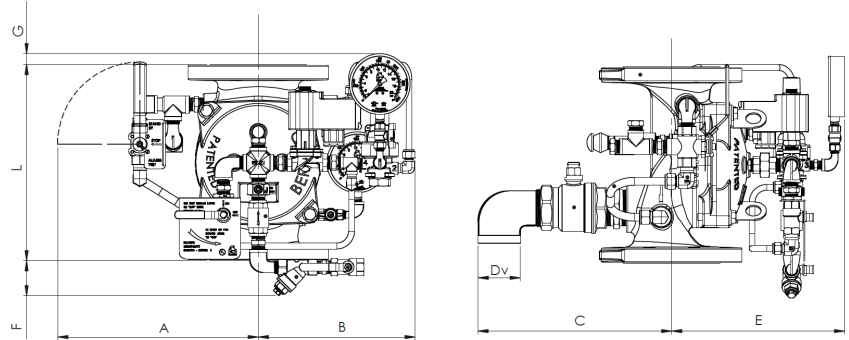
ANSI#150 - 17.2 bar | 250 psi

Grooved - 17.2 bar | 250 psi

Elastomer:

HTNR - Fabric Reinforced High Temperature

Compound - See engineering data



Valve Size	L #150 mm in	L Grooved mm in	A mm in	B mm in	C mm in	øD in	E mm in	F mm in	G mm in	Weight #150 kg lb
DN40 1½"	205 8.1	-	313 12.3	256 10	199 7.8	¾"	227 8.9	115 4.5	50 2	18 40
DN50 2"	205 8.1	205 8.1	313 12.3	256 10	199 7.8	¾"	227 8.9	115 4.5	50 2	19 42
DN65 2½"	205 8.1	-	325 12.8	256 10	253 10	1½"	229 9	115 4.5	50 2	22 49
DN80 3"	257 10.1	250 9.8	345 13.6	256 10	266 10.5	1½"	263 10.4	89 3.5	49 2	30 66
DN100 4"	320 12.6	320 12.6	329 13	219 8.6	316 12.4	1½"	270 10.6	128 5	45 1.8	34 75
DN150 6"	415 16.3	415 16.3	349 13.7	256 10	347 13.7	2"	359 14.1	10 0.4	-	88 194
DN200 8"	500 19.7	500 19.7	383 15.1	256 10	364 14.3	2"	409 16.1	-	-	150 331
DN250 10"	605 23.8	-	396 15.6	256 10	384 15.1	2"	407 16	-	-	167 368
DN300 12"	725 28.5	-	438 17.2	297 10.1	422 16.6	2"	504 19.8	-	-	255 562

IMPORTANT: Dimensions for the trim envelope or extents refer to a vertical orientation and may vary with specific component positioning - Apart from the "L" dimension, allow a tolerance of at least ±15%

Valve Code Designations

FP	6"	400E-2DC	03	V	C	A5	ER	4DC	NN	N6nW																																																																																																																																																				
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Notes:

(1) Other materials available see engineering data

(2) Coated internally and externally

(3) Supplied loose

(4) Consult BERMAD for availability

(5) For valves up to and including 10"

Notes:

- (1) Other materials available see engineering data
- (2) Coated internally and externally
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- (4) Consult BERMAD for availability
- (5) For valves up to and including 10"

Additional Feature	Code
Closing Speed Control	01
Opening Speed Control	02
Opening & Closing Speed Control	03
None	-

* NO or NC refers to the main valve status when the Solenoid is de-energized

Tubing & Fittings	Code
Stainless Steel 316	NN
Monel 400	MM
Super Duplex	DD

*More options available – consult BERMAD